

CLAIMS

1. A system for location recognition using IC tags, wherein an interrogator makes a first communication with multiple IC tags existing in a communication area A by radio, and at the same time, said IC tag makes a second communication with other IC tags existing in a communication area B ($<A$) by probe signals, said IC tag comprising;
 - a first response means for responding own information X to the interrogator,
 - a transmission means for sending out said probe signals to the other IC tags,
 - a reception means for receiving said probe signals sent out by the other IC tags,
 - a storage means for storing information Y of a source IC tag in a memory when reception strength of said probe signal is more than a predetermined level, and,
 - a second response means for responding the information Y of the source IC tag stored in the memory to the interrogator,
 - whereby relative positions of said IC tags are recognized from the information X and the information Y collected via said interrogator.
2. The system for location recognition using IC tags as described in claim 1, wherein all possible combinations of said information X and information Y are obtained, and any of said combinations having one side of information in common are joined so that locations and arrangement order of said IC tags are specified.
3. The system for location recognition using IC tags as described in claim 1, wherein either one of radio wave, magnetism, sound, and light, which are all omnidirectional propagation media that become attenuated progressively with distance, is used for said probe signals.
4. The system for location recognition using IC tags as described in claim 1, wherein communication range of said communication area B is adjusted at different lengths depending on sizes and arrangement of items to which said IC tags are affixed.
5. The system for location recognition using IC tags as described in claim 1, wherein responses of said first response means and second response means are sequentially made while the interrogator specifies response requirements so as to avoid collisions.
6. The system for location recognition using IC tags as described in claim 1, wherein said probe signals are sequentially transmitted while the interrogator specifies response requirements so as to avoid collisions.
7. A method for location recognition using IC tags, wherein an interrogator makes a first communication with multiple IC tags existing in a communication area A by radio, and at the same time, said IC tag makes a second communication with other IC tags existing in a communication area B ($<A$) by probe signals, said IC tag comprising;

- a first response step in which said IC tag responds own information X to the interrogator,
a transmission step in which said IC tag sends out said probe signals to the other IC tags,
a reception step in which said IC tag receives said probe signals sent out by other IC tags,
- 5 a storage step in which said IC tag stores information Y of a source IC tag in a memory when reception strength of said probe signal is more than a predetermined level, and
- a second response step in which said IC tag responds information Y of the source IC tag stored in the memory to the interrogator,
- 10 whereby relative positions of said IC tags are recognized from the information X and the information Y collected via said interrogator.